

Research activities in France

ELF: Extremely-low-frequency magnetic fields

Projects funded by EDF-RTE¹

- Modelling of the currents induced in the head and thorax in electricians who work on the lines (Insa, Lyon),
- Collaboration with LHRI, Hydro-Québec and Health Canada in an investigation on volunteers exposed at 1.8 mT (cognitive tests), and 3 mT (simple task performance explored by fMRI),
- EXPERS project: Collaboration with Ministry of Health and Supélec: Assessment of 50-Hz magnetic field exposure levels of the French population (1000 adults and 1000 children; Supélec, Gif sur Yvette). Results expected in 2010.
- Assessment of the average annual magnetic-field exposure near high-voltage equipment (e.g. power lines; related to the Inserm study)
- EMC study on pacemakers and ICD including at workplace (LIEN, University of Nancy).

Project funded by AFSSET²

- Assessment of average ELF (50-800 Hz) magnetic field exposure levels of 17 inhabitants in Champlan (France), mapping of magnetic field levels in the town (Supélec, Gif sur Yvette).

Project funded by the Ministry of Health

- EXPERS project: Collaboration with Ministry of Health and Supélec (see above).

Project funded by Inserm³

- Analysis of the distribution of leukaemia as a function of location with respect to high-voltage equipment (e.g. power lines) (National registry, Inserm)

AFSSET ELF : Afsset released an opinion on ELF health risks (april 2010),⁴ based on a synthesis realised by an expert group. A survey of exposure measurements of ELF fields emitted by electro-domestic appliances has been performed.

RF : radiofrequency fields

H&RF Foundation: The main source of research funding in the RF range (and not only for mobile telephony) has been the Foundation "Santé et Radiofréquences" (Health and RF).⁵ The foundation is funding research with priorities in line with the latest WHO RF recommendations. Four calls for proposals have been launched. The main axes of the last call were:

- Impact of RF exposure on children, teenagers, and future generations;
- Greater knowledge about exposure of the general population and workers;
- Impact of cumulated exposure from different sources;
- Impact of long-term low-level exposure;
- Management of public debates on the issue of RF and health.

25 projects have been selected: 10 are now finished and 15 are still ongoing:

¹ Electricité de France, Réseau de transport de l'électricité. Contact: martine.souques@edfgrd.fr

² Agence Française de Sécurité Sanitaire de l'Environnement et du Travail www.afsset.fr Contact: olivier.merckel@afsset.fr

³ French Medical Research Council. Contact: denis.hemon@vjf.inserm.fr

⁴ www.senat.fr/notice-rapport/2009/r09-506-notice.html

⁵ www.sante-radiofrequences.org/

Summaries of the projects are available online.

It has been decided by the government that the Foundation missions will be transferred to AFSSET by end of year.

AFSSET: Following a recent call for proposals, the exposure assessment of a cross section of the population has been performed by two teams of epidemiologists in Besançon and Lyon (IARC) using individual exposimeters. Validation of the equipment was done by INERIS. A new call for proposal is now out.

Inside the expertise report released on October 2009, a survey has been performed to evaluate the ELF fields near mobile phone base stations and bring information on the controversial subject of ELF components in RF fields.

INERIS-MEEDDM: a research programme is funded by the MEEDDM⁶ on neurological effects of EMF, bearing mainly on inflammatory markers and oxidative stress, and complements the H&RF Foundation project on effects of chronic exposure on memory and attention.

DGA⁷: a research project on biological and health effects of high power microwave was funded and run by INERIS. Results are going to be published in 2010.

A project on sleep and metabolism of rats exposed to base stations antennas is ongoing at the University of Amiens in collaboration with INERIS.

Another project is starting on human physiological vascularisation.

A medical consultation for people intolerant to EMF is in preparation.

Dosimetry

Lab Creation. A new common laboratory, the WHIST lab, has been created in France by the Telecom institute (academic) and France Telecom Orange labs (company): <http://whist.institut-telecom.fr/>. The WHIST lab is involved in several French dosimetric research projects (see the WHIST lab Web page)

Project sponsored by ANR

Several project sponsored by ANR are on-going. These projects were presented last November (<http://whist.institut-telecom.fr/> " journée ANR 2009")

OP2H (started end 2006) : Optimisation of antenna location using dynamic homogenisation (Orange Labs, CSTB, Samito, Univ Marne la Vallée)

MDP2 (Started end 2006) : FAST SAR measurement (Satimo, Telecom Bretagne, ENSCPB IMS)

HIMWR (Started 2006) Health impacts of millimeter wave radiations (HIP, IETR Univ. Rennes 1)

SAMPER (started end 2007) : interpolation of EMF in situ measurement (CSTB, ENSMP, Orange Labs, Satimo)

MULTIPASS (started end 2007) : Multiple exposure assessment (Orange Labs, Telecom Bretagne, Satimo, Supélec, Xlim)

MERODAS (started end 2008) : SAR measurement with no robot (Orange Labs, Telecom Bretagne, Satimo, Univ Besançon FEMTO)

KIDPOCKET (started end 2009): MRI based child models development and RF exposure assessment of children. (Orange Labs, Telecom ParisTech, INSERM-IGR, Telecom Bretagne, INRIA, univ P6, univ Marne la Vallée, Phimeca)

Fetus (will start in June 2010): French ANR + Japan JST project. Fetus models development and RF exposure (in france : Orange labs, Telecom ParisTech, Telecom Bretagne, Phimeca)

⁶ www.developpement-durable.gouv.fr/

⁷ Ministry of Defence (Direction Générale de l'Armement)

Project sponsored by the S&RF Foundation.
See above

Project sponsored by the EU
Mobikids: the Whist Lab is contributing to RF dosimetry

Project sponsored by Orange
Animal exposure setup based on a reverberating chamber
Contribution to foetus models development

Common project between Orange Labs and Supelec
Influence of the hand on the SAR

Contribution to standardization

Project coordinated by ANFr
In situ measurement protocol
Adaptation of the French protocol to the European EN50492 standard.

Project coordinated by CENELEC, IEC and IEEE
Contribution to the new standard IEC 62209-2 (body worn equipments)
Contribution to the IEEE 1528 (compliance analysis u

Information for the general public

- With the collaboration of others ministries, the Ministry of Health is working on a new institutional website related to radiofrequencies (www.radiofrequences.gouv.fr) which will be online on June 2010. Others information documents about both RF and ELF are in process.
- The “Health & RF” Foundation has the mission to define, promote and fund programmes to bring information to the public and to the workers. It has organised a “blue bus” that travelled through France last year. An interactive Website has been developed to inform people about RF and health aspects⁸. The foundation will organized an open scientific meeting on 20-21 October in Paris.
- A website has been opened to support local authorities and inform public about EMF exposures and regulations: www.ondes-info.fr . From this website, limit values can be calculated for any frequency and exposure configuration:
- On its Website⁹, RTE has published a specific module to explain what are ELF sources and health effects. The conclusions of scientific expertises are given as well as regulations.
- The Non-Ionising Section of the SFRP is updating its book on biological effects of non-ionising radiation, from static fields to UV radiation¹⁰. This book in French is expected to be published soon.

Regulations

No new regulations issued during the reporting period.

Expertise, Government and Agencies

⁸ www.lesondesquestions.fr

⁹ www.rte-france.com/htm/fr/environnement/champs_elec.jsp

¹⁰ Contact: aperrin@crssa.net

OPECST:¹¹ The senator Daniel Raoul was commissioned by OPECST to investigate the issue of health (human and animal) and environmental impacts of high and very high voltage lines. He is doing extensive interviewing of all stakeholders (scientists, pressure groups, politicians, operators, etc.) in France. He has organized “round tables” with various stakeholders. This OPECST report should be out soon.

SFRP¹² Meeting on NIR in Amiens on 19 October 2010

Current “crisis” around mobile telephony

Government

Round Table “radiofrequencies, health and environment”

The round table related to RF started on 23 April and ended on 25 May 2009 and gathered all stakeholders: government, public agencies, elected people, industry, NGO, etc. A committee was set up to follow the actions decided by the government related to information, regulation, and research. A workgroup is working on the technical possibility of reducing exposure levels and defining new practices for local discussions about BTS.

Parliament

OPECST (Parliament Office for the Evaluation of Science and Technology Issues)

An MP (Alain Gest) was commissioned to investigate the issue of wireless communications and health and update the 2002 report of OPECST. He did extensive interviewing of all stakeholders (scientists, pressure groups, politicians, operators, etc.) in France and abroad. He organized several “round tables” with the various stakeholders. The OPECST report was published in November 2009.¹³

¹¹ [Parliamentary Office for the Evaluation of Scientific and Technological Choices www.senat.fr/opecst/](http://www.senat.fr/opecst/)

¹² French Radiological Protection Society

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